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GEODEMOGRAPHY OF THE SAINT PETERSBURG SUBURBS

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In this article, we analyse the structure and the development dynamics of the Saint Petersburg suburbs — home to over 1.6 million people. To this end, we employ statistical, historical, and empirical research methods and carry out a comparative analysis. Geodemographic studies should take into account not only demographic data but also the characteristics of the settlement system. Such studies are particularly important for suburbs. Russian social geography pays little attention to suburban studies, although such territories have become an independent object of research in international geographical science. The Saint Petersburg suburbs are of special interest from the perspective of geodemography, which is explained by the significant size of the area — a result of the territory's historical development. The formation of the settlement system of the Saint Petersburg suburbs started with the foundation of the city, and continues to this day. Today, their spatial structure is shaped by the current administrative border between Saint Petersburg and the Leningrad region — a product of the territory's development in the Soviet period of Russia's history. The lengthy process of border formation has given it a peculiar character. The most vibrant and attractive areas of the suburbs are located at a distance of 14–32 km from the centre of Saint Petersburg, between the isochrones of forty- and ninety-minute transport accessibility. Lying at a distance of approximately 60 km from the city centre, the two-hour travel time band marks the border of both the commuter zone and the Saint Petersburg agglomeration. A new settlement system is emerging within the suburban area of Saint Petersburg — the most economically, demographically, and socially vibrant territory of Russia's North-West.

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Introduction

Geodemographic research has been on the rise in recent years in Russia. According to G. Fedorov, "geodemography is a research area developing at the junction of several social sciences... It allows for a complex study of regional demographic features in their connection to both internal (demographic), and external (economic, distributive, social, ethnic, ecological, political) factors" [1, p. 7]. This definition seems to be the most suitable foundation for geodemographic research, but for one point — the settlement distribution is so closely bound to demographics that it can hardly be considered an external factor. Moreover, studying of both demographic and distributive factors together allows to classify a research project as a geodemographic one, i. e. geographical in its core.

As E. Faybusovich and S. Kornekova put it, "It would be very desirable that geodemography, absorbing the ideas of demography, would develop as a geographical science: the same way as economic geography absorbs the ideas of economic sciences, or social geography — of social sciences and so on" [2, p. 34]. T. Borodina, rarely ever using the concept 'geodemography', notes, "The analysis of the distribution of the population and its territorial shifts traditionally serves as one of the integral subjects of the late Soviet and Russian social and economic geography, within which the natural resources potential of territories, their economic systems and resettlement are investigated interdependently" [3, p. 47].

The very definition of geodemography showcases essential differences between Russian and Anglo-Saxon research traditions. Within the latter, geodemography is considered to be a purely applied rather than theoretical line of research, used to identify various preferences of particular groups of the population. In their article "Past, Present and Future of Geodemographic Research in the United States and Great Britain", A Singleton and S. Speelman state that "Geodemographic models can be considered idiographic, providing descriptive characterization of multiple geographical areas; with their operationalization based on the principle that socio-spatial structure is highly correlated with behaviors, attitudes, and preferences. In this way, geodemographic classifications are "theory-free,"" [4, p. 563].

In recent years, much attention has been paid to studying spatial aspects of St.-Petersburg and the Leningrad region. Some of the latest geographical papers on the topic include, for example, I. Reznikov's "Identification of borders of the Saint Petersburg city agglomeration" [5] or A. Hodachek's "On the Saint Petersburg agglomeration from the city-planning perspective" [6]. Some of these papers have even been published internationally (see, for example, [7]). Much is also written on the geography of the Moscow agglomeration, and can be a useful reference

for studying Saint Petersburg (see, for example, [8; 9]). Finally, there is a lot of literature with geodemographic (in the Anglo-Saxon sense) research into city agglomerations of Britain or the US (see, for example, the study of Greater London geodemography in [10]).

Yet an "agglomeration" is not the same as a "suburban area". For the purposes of this article, "suburban area" of Saint Petersburg incorporates those territories of the Leningrad region that used to be subordinate to the Leningrad city council, as well as those areas of the region directly adjacent to the city of Saint Petersburg.

Soviet public geography never paid much attention to purely suburban issues. Neither does the public geography of the post-Soviet Russia, which keeps the tradition of viewing suburbs as little more than an "annex" to the main city of agglomeration. In the Western geography, however, and especially in the American one, suburban areas became a separate object of economical and geographical research several decades ago. One example of such approach is the book "Suburban Gridlock", first published in 1986 and running several editions up until 2017 [11]. The book's author, R. Cervero, says the following on the role of the suburbs: "Suburbia has come to represent an important slice of Americana over the post-WWII era, a place where families can maintain a rural-like lifestyle while residing close enough to big cities to enjoy the same occupational choices as urban dwellers. The image of the suburbs as predominantly bedroom communities is forevermore being redrawn by the steady influx of offices and businesses, and the urban kinds of problems they bring along" [11, P. XXI—XXII]. While the history of Russian, and in particular, Saint Petersburg, "suburbia" is significantly different from that of the US, many of our modern suburban problems are very similar to the North American ones.

Border of the Saint-Petersburg and the Leningrad region

Administrative borders of the modern St.-Petersburg and the Leningrad region have been developing for several decades, and are — for the most part — artificial in nature. They would often be literally drawn right along the street, one side of which was deemed "Saint Petersburg", and another — "the Leningrad Region". To answer the question on how the borders of Saint Petersburg and the Leningrad Region, along which suburbs have subsequently sprawled, were created, one should look at the system of the administrative-territorial division (ATD) of the Soviet period. In the USSR, there was no rhyme, reason or public discussion on where the administrative borders should be drawn. Since no logical explanation can be offered as to *why* the ATD is shaped the way it is today, it is only possible to trace *how* particular borders came to be formed.

In the end of the 1920s, during the reform of administrative-territorial division of the better known as the "division into districts", the Leningrad Region is formed from the city of Leningrad, and the Leningrad, Pskov, Novgorod, Cherepovets and Murmansk provinces. Officially, this happened on August 1, 1927. On this basis, the Leningrad suburban district is formed in 1930s, surrounding the city of Leningrad in its then borders. In 1931, the city of Leningrad becomes a separate administrative entity within the territory of the Leningrad region, while the town of Kronstadt is placed under authority of the Leningrad city council. In 1936, the Leningrad suburban area is abolished, and a part of its territory including Peterhof, Detskoe Selo (Pushkin) and Kolpino is also placed under the Leningrad city council, remaining at the same time in structure of the Leningrad region. Another part of the Leningrad suburban area remains both in structure and under the administration of the Leningrad region. Krasnoselsky, Slutsk (Pavlovsk), Pargolovsk and Vsevolozhsk districts are formed. In 1948 Sestroretsk and a small part of the former (until 1940) Finnish territory with the main town of Terioki (Zelenogorsk) is placed under the Leningrad city council. In 1950 the town of Uritsk (Ligovo) is included in the boundaries of the city of Leningrad.

In 1953 the Pavlovsk district of the Leningrad region is abolished, its territories divided between the city of Leningrad (northern part of the territory with the town of Pavlovsk itself) and the Leningrad region (Tosnensky and Gatchina areas). In 1954 Pargolovsky district shares the fate of Pavlovsk, with its southern part — including the settlements of Pargolovo, Levashovo, Osinovaya Roscha — now belonging to Vyborg (Leningrad) and Sestroretsk (one of the territories subordinate to Leningrad) areas, and its northern part merging with the Vsevolozhsk district of the Leningrad region. One result of these changes was that the Vsevolozhsk district now consisted of two very different parts divided by the Rzhev artillery ground. In 1955, 1960 and 1963 some the Vsevolozhsk district territories join Leningrad, and the border of the city is moved further East. In 1973, Krasnoye Selo also becomes a part of the Leningrad city. In 1976, the town of Lomonosov, while remaining the administrative centre of the Leningrad region, submits to the Leningrad city council.¹

These historic shifts in administration and territorial division have produced the intricate border between St.-Petersburg and the Leningrad region that we know today. On the northern coast of the Gulf of Finland, the most distant point of the Saint Petersburg urban area lies approximately 70 km from the downtown (the settlement of Smolyachkovo of Kurortny district), on the southern coast — approximately 50 km (Bronka, the western suburb of Lomonosov), in the north — about 25 km (Osi-

¹ Administrative-territorial division of the Leningrad region. Reference book. Source: http://msu.lenobl.ru/Files/file/2_-_soderzhanie.pdf (accessed 21.04.2018).

novaya Roscha of Vyborgsky district of Saint Petersburg), in the south — approximately 30 km (near the settlement Lesnoye belonging to Pushkin district of Saint Petersburg), in the east — approximately 10 km.

When the Constitution of the Russian Federation was signed in 1993, the federal city of Saint Petersburg and the Leningrad region both received the status of "territorial subjects of the federation", with borders between them subsequently fixed in the regional laws: namely, in the Saint Petersburg law of 31.12.1996 No. 186—59 "On the administrative-territorial division of Saint Petersburg ", and its replacement regulation "On the territorial division of Saint Petersburg ", which came into effect on June 30, 2005 and is still in effect². In the Leningrad region, the law no. 9-OZ "On the administrative-territorial division of the Leningrad region" was first introduced on 17.04.1996 and reintroduced (under the same number code) on 26.05.2017.³

These laws abolished "territories of the Leningrad region subordinate to the Saint Petersburg city council" as a type by securing their status as parts of the city (Kronstadt and Kurortny districts, part of Primorsky and Vyborgsky districts, Kolpino, Pushkin, Petrodvorets districts). Still, these nonexistent "city council subordinates" are to this day mentioned in literature, as, for example, in the article "On the periphery the areas of mass housing estate border on a ring of regional territories in the city council subordination" [12, p. 43]. By the time the article quoted above appeared — 2010 — "suburban territories of city council subordination" had not existed for fourteen years already. And even when they were still there, there was hardly ever any "ring" to speak of, since these territories never extended to the east, where the city directly bordered the Leningrad region.

Smaller shifts of borders between Saint Petersburg and the Leningrad region, including those that require changes in places of registration of their inhabitants (St.-Petersburg to the Leningrad region and vice versa), are a common occurrence. So, in 2004 the territory of the tank regiment located between Pesochnoye (Kurortny district of Saint Petersburg) and Sertolovo (Vsevolozhsk district of the Leningrad region) was reassigned from Kurortny district of Saint Petersburg to the Leningrad region. Accordingly, about 1,5 thousand people "moved" between territorial subjects of the federation without leaving their houses. Similar thing happened with a military unit located along Ryabovskoye highway on the border of the Vsevolozhsk district of the Leningrad region, where 500 residents ended up being "relocated" in this way.⁴

² The law of St. Petersburg "On the territorial division of St. Petersburg. Source: <http://gov.spb.ru/law?d&nd=8414528> (accessed 21.04. 2018).

³ Law on the administrative-territorial division of the Leningrad Region. Source: <http://docs.cntd.ru/document/891832035> (accessed 21.04.2018).

⁴ The new border between St. Petersburg and the Leningrad region calls into question the legitimacy of the St. Petersburg deputies. Source: <https://regnum.ru/news/226072.html> (checked on 21.04.2018).

In 2010 the border between the Lomonosov district of the Leningrad region and the Krasnoselsky district of Saint Petersburg, where a new residential district, Novo-Gorelovo, was built, was changed to extend the limits of the city. The city council, who had approved of the construction of a new housing estate, learned that the territory on which the estate was being built belonged to the Leningrad region only after the works had begun. Both the territory and several thousand people residing within its limits were subsequently made a part of Saint Petersburg.⁵

The village Khvoinyu with the population more than 5 thousand people, a part of Saint Petersburg located to the south from its main territory and surrounded from all sides by the Gatchina district of the Leningrad region is another headache for local authorities [13]. While delineating the borders between the city and the region in the 1990s, those eager to draw a clear line between the two subjects of the new federation simply forgot to account for this small settlement.

Saint Petersburg and the Leningrad region: two sides of one suburban area

Data on change of the population of the main towns in the modern suburban area of Saint Petersburg, irrespective of their administrative status as part of either the city or the region, is provided in Table 1. The names of the towns are given in an order of their geographical arrangement around Saint Petersburg, clockwise.

It should be noted that the legal status of the towns and settlements, which are a part of Saint Petersburg is not quite clear. Officially, there is only one town or city on this territory, Saint Petersburg. Yet the existence of other towns within its borders is still recognized by, for example, the Head department of the migration service of the Ministry of Internal Affairs of the Russian Federation (or Federal Migration Service), which registers population at their place of residence by specifying their towns or settlements within Saint Petersburg. For example, a registration may read, "Saint Petersburg, the town of Peterhof". If a settlement is a part of another town within the city, which is sometimes the case, then the official registration turns into a tiered structure, for instance: "Saint Petersburg, [town of] Pargolovo, [settlement] Osinovaya Roscha". Without such detalization, it may not be possible to understand what street a per-

⁵ The resolution of Legislative assembly of the Leningrad Region of December 8, 2010 "On the enactment of the Padding agreement to the Agreement "On specification of border between St. Petersburg and the Leningrad region as territorial subjects of the Russian Federation". Source: <http://lenobl.kodeks.ru/lenobl?d&nd=891843911&prevDoc=891843911&spack=110listid%3D010000000100%26listpos%3D175%26lsz%3D5089%26nd%3D9000002%26nh%3D0%26start%3D160%26> (accessed 21.04.2018).

son lives in, since many streets bear standard names, repeated from settlement to settlement (Lenina, Sovetskaya, Lesnaya, Parkovaya, Sportivnaya, Shkolnaya etc.).

Table 1

**Population of the cities of the residential suburb of Saint Petersburg
in the end of the 19th — the beginning of the 21st century***

City	Population, thousand people			
	1897	1959	1989	2018
Sestroretsk	10	25	35	41
Sertolovo	—	—	18	53
Vsevolozhsk	—	—	32	73
Shlisselburg	5	7	13	15
Kirovsk	—	11	24	27
Otradnoye	—	6	24	25
Kolpino	9	35	141	146
Nikolskoye	—	—	17	23
Tosno	—	15	32	38
Kommunar	—	5	18	22
Pushkin	22	46	98	110
Gatchina	15	37	79	94
Krasnoye Selo	3	16	No data**	57
Peterhof	11	38	81	98***
Lomonosov	5	28	42	43
Kronstadt	60	40	45	44

Notes: * towns in the Table are listed by their present names; ** in a census of 1989 the town Krasnoye Selo which is a part of Krasnoselsky district of Leningrad — Saint Petersburg, was not considered separately; *** population of Peterhof in 1959, 1989 and 2018 is given together with the settlement Strelna, without it population of Peterhof for 2018 is 83 thousand people.

Compiled by the authors based on: [⁶, ⁷, ⁸, ⁹, ¹⁰].

⁶ First General population census of the Russian Empire of 1897. Actual population in provinces, counties, the cities of the Russian Empire (without Finland). Source: http://www.demoscope.ru/weekly/ssp/rus_gub_97.php (accessed 21.04.2018).

⁷ All-Union population census of 1959. Urban population of RSFSR, its territorial units, city settlements and urban areas on a floor. Source: http://www.demoscope.ru/weekly/ssp/rus59_reg2.php (accessed 21.04.2018).

⁸ All-Union population census of 1989. Urban population of RSFSR, its territorial units, city settlements and urban areas on a floor. Source: http://www.demoscope.ru/weekly/ssp/rus89_reg2.php (accessed 21.04.2018).

⁹ Population of St. Petersburg as of January 1st, 2018. Source: http://petrostat.gks.ru/wps/wcm/connect/rosstat_ts/petrostat/resources/4e67d90040bd4afc874f87a3e1dde74c/СПб+числ+на+01.01.2018+по+МО.pdf (accessed 21.04.2018).

¹⁰ Assessment of population of the Leningrad Region for January 1st, 2018. Source: http://petrostat.gks.ru/wps/wcm/connect/rosstat_ts/petrostat/resources/8478a90040bd4d06876d87a3e1dde74c/ЛЮ_Числ+на+01.01.2018.pdf (accessed 21.04.2018).

One may note that there is no data on the settlements of the suburban area for the interbellum period. This is explained by the fact that the Leningrad suburbs suffered a massive destruction during the Great Patriotic War, especially those occupied by the German troops — the towns of Peterhof, Krasnoye Selo, Gatchina, Pushkin, and Pavlovsk. According to Yu. Stupin, urban population of the Leningrad region for January 1st, 1945 was 27,4% to the pre-war number [14, page 65]. In other words, after 1945 the history of these settlements begins from scratch, since there at that point there is very little connection to the way they used to exist before 1941 [15]. Data on the population in 1897 is mainly given to provide with a starting point in understanding the features of spatial transformations of the settlements within the Leningrad region and Saint Petersburg suburban areas in the 20th century.

In the end of the 19th — beginning of the 20th century practically all suburban towns and other settlements of the territory were located to the south from Saint Petersburg and mostly along the main tracks, thus keeping to the pattern established from the 18th century onwards. The only new town that appeared there in the interbellum period is Kirovsk (Nevdubstroy), which started as a settlement near the construction of the district power plant and took on administrative functions from the nearby Shlisselburg township, located further up the Neva river. During the post-war decades, the system of urban settlement around Leningrad began to gradually change — mainly by incorporating previously rural territories to the north and east of the city.

The "filling of the space" that begins with the renewal of mass housing construction at the beginning of the 21st century, links suburban towns with each other as well as with the city of Saint Petersburg, thus giving a new start to the polarizing turn in the Saint Petersburg system of resettlement postponed in the 1990s. T. Nefedova and A. Treyvish [16; 17] proposed to analyze regional systems of resettlement of Russia from the theory of a differential urbanization already at the beginning of the 21st century.

To estimate the volume and value of this "filling of space" and the geodemographic component of this polarized reversion, one needs to analyze the changes in population along the Leningrad (Saint Petersburg) and the Leningrad region border from 1979 to 2017. 1979 is chosen as a starting point because it is by this time the administrative-territorial division system of the Leningrad region takes its present-day shape.

Table 2 shows data on those districts of Leningrad (Saint Petersburg) that up to the mid-1990s had been registered as "the territories of the Leningrad region subordinate to the Leningrad city council". Districts of Leningrad (Saint Petersburg) city proper, even those immediately adjacent to the Leningrad region border, are not shown Table 2. As for the

Leningrad region, all areas bordering Leningrad (Saint Petersburg) are accounted for except for the Vyborgsky district, since its main area lies outside the Saint Petersburg suburbs. So, the following territories are listed as Saint Petersburg suburbs: suburban parts of the Primorsky (earlier Zhdanov) and Vyborgsky (St.-Petersburg) districts, Kolpino, Pushkin, Pavlovsk (1995—2005), Petrodvorets and Lomonosov (Saint Petersburg, 1995—2003) districts, as well as Kronstadt and Kurortny (Sestroretsk). Vsevolozhsk, Kirovski, Tosnensky, Gatchina, Lomonosov (Leningrad region) districts are listed as suburbs of the Leningrad region.

Table 2

**Population of the suburbs of Leningrad (Saint Petersburg)
and the Leningrad region in 1979—2017**

Year	Leningrad (Saint Petersburg)		Leningrad region		Total	
	Thousand people	% ¹¹	Thousand people	% ¹²	Thousand people.	% ¹³
1979	514	11,2	591	38,9	1105	18,1
1989	563	11,2	661	39,8	1224	18,3
2002	543	11,5	728	43,6	1264	20,0
2012	592	12,0	803	48,1	1395	20,1
2018	733	13,7	877	50,0	1610	22,5

Compiled by the authors based on: [¹⁴, ¹⁵, ¹⁶, ¹⁷, ¹⁸, ¹⁹, ²⁰].

The decade between two last Soviet (1979 and 1989) saw a gradual, evolutionary development of the Leningrad suburbs, irrespective of whether the territory belonged to the city or to the region. Suburban population grew at rates comparable to those typical for both Leningrad and the surrounding region.

¹¹ Share to the total population of Leningrad — the Saint Petersburg;

¹² Share to the total population of the Leningrad region;

¹³ Share to the total population of Leningrad — the Saint Petersburg and the Leningrad region.

¹⁴ All-Union population census of 1979.

¹⁵ All-Union population census of 1989.

¹⁶ All-Russian population census of 2002.

¹⁷ Population of municipal units of St. Petersburg for January 1st, 2012.

¹⁸ Population of municipal units and the Sosnovoborsk city district of the Leningrad region for January 1st, 2012.

¹⁹ Population of St. Petersburg as of January 1st, 2018.

²⁰ Assessment of population of the Leningrad region for January 1st, 2018.

One of distinctive features of the suburbs subordinate to either the city or the region has long been a high proportion of “private sector” housing. Going back to the 1950s—1960s, where a growing housing problem within the city limits led to the allocation of land plots to be used for the construction of single-storied, detached suburban houses. As a result, there are now concentrated clusters of private one-family homes that once housed staff of nearby enterprises — for example, the Skorokhod settlement within the town of Peterhof. Suburban apartment blocks were another popular solution for those companies who wished to improve the living conditions of their workers, and entire housing estates would be constructed on the order of the companies and with their own resources at the least favorable locations. So, the settlement Pesochny in Sestroretsk (Kurortny) became home to the workers of the Russian Diesel factory.

In the 1990s the population of suburban territories of the Leningrad region grew at a faster rate than in the suburbs of Saint Petersburg, where the number of people declined with the drop in the population of the city. In the Leningrad region, on the other hand, the 90s were the time of active development of residential housing in the areas along the city limits. This can be seen in the case of the Vsevolozhsk district, where the construction of new residential quarters adjoining Devyatkin metro station (the only station of the Saint Petersburg subway located on the territory of the Leningrad Region) began. The first years of the 21st century saw a rapid population growth in the suburban areas of both the city and the region.

For Saint Petersburg, the growth in the number and share of the suburban population demonstrates that, in the urban settlement system, both concentration and polarization are declining. Table 3 allows to compare data on the population of the central and suburban districts of the Leningrad (Saint Petersburg) city in 1959—2017. For the purposes of this paper, “central” districts are those where the most of the Leningrad (Saint Petersburg) city population resided in the 20th century. From 1959 to 1989 central districts were Leninsky, Oktyabrsky, Kuibyshevsky, Smolninsky, Dzerzhinsky, Vasileostrovsky (in 1959 — together with Sverdlovsky) and Petrogradsky districts; for 2002, 2012 and 2017 — Admiralteisky (including Leninsky and Oktyabrsky areas), Tsentralny (Kuibyshev, Smolninsky and Dzerzhinsky areas), Vasileostrovsky and Petrogradsky districts.

On January 1st, 2018, there were more people living in the suburbs of Saint Petersburg than in the central districts. In 2014 it was said that in Russia suburbanization did not lead to the deconcentration of the population [18, p. 65], yet the data provided in Table 3 shows that in Saint Petersburg the population deconcentration has been an ongoing process for several decades now.

Table 3

**The number and share of the population central and the suburban districts
of the Leningrad (Saint Petersburg) city in 1979—2017**

Year	Suburban districts		Central districts	
	Thousand people	% ²¹	Thousand people	%
1959	357	11,6	1 513	52,2
1979	514	11,2	951	20,7
1989	563	11,2	850	16,9
2002	543	11,5	759	16,3
2012	592	12,0	716	14,5
2018	733	13,7	730	13,6

Compiled by the authors on the basis of: [²², ²³, ²⁴, ²⁵, ²⁶, ²⁷, ²⁸, ²⁹].

That the suburbs would grow, and their growth would reflect in the growing population, is neither new or unusual, but a logical consequence of the main trends of urban development — when a city grows in layers, with alternating industrial and residential “belts”. The development of the Leningrad suburbs from 1960s to 1980s was also a manifestation of de-concentration, as well as of suburbanization: new suburban districts developed at the site of old suburban settlements, which until 1950s were located outside the city limits. So, the present-day large Shuvalovo-Ozerki district now occupies the site of two settlements — Pargolovo 1 and Pargolovo 2. The vast bedroom community of Kupchino grew between the Moscow and Vitebsk railroads between 1960s and 1990s and kept the name of one of the villages that had previously existed in this area. Had the borders of Leningrad (Saint Petersburg) remained unchanged over the 20th century — as was the case with Paris or New York, for example, — several dozen independent towns would have grown beyond Obvodny Canal to the south and the Bolshaya Nevka river to the north.

Saint Petersburg and the Leningrad region are very often “bundled” together in the most different contexts, including that of geodemographic research (see, for example [19]). In reality, these regions differ in the most possible respects, including several key geodemographic trends.

²¹ from the total number of the population of Leningrad — St.-Petersburg.

²² All-Union population census of 1959.

²³ All-Union population census of 1979.

²⁴ All-Union population census of 1989.

²⁵ All-Russian population census of 2002.

²⁶ Population of municipal units of St. Petersburg for January 1st, 2012.

²⁷ Population of municipal units and the Sosnovoborsk city district of the Leningrad Region for January 1st, 2012.

²⁸ Population of municipal units of St. Petersburg as of January 1st, 2018.

²⁹ Population of municipal units of St. Petersburg as of January 1st, 2018.

For the Leningrad region, population growth in the Saint Petersburg suburbs means further concentration and, consequently, further deepening of the chronic demographic divide between the region's periphery and the city's suburbs. Starting with 2003, the region's population grew through migration, which compensated for the decline in natural reproduction. With each passing year, suburban areas of the Leningrad region show better population dynamics, while the population at the periphery of the region has been dropping since 2012 due to the decline in migration hindered by the low attractiveness of the territory (see Table 4). By 2016, the only district with the growing population outside the suburban areas of the Leningrad region was the Sosnovoborsky town district (around the one-company town of Sosnovy Bor, the company being the Leningrad Nuclear Power Plant).

Table 4

**Population dynamics in the suburban municipal districts
of the Leningrad region in 2011—2016, people**

Municipal districts	2011			2013			2016		
	NI	MI	CI	NI	MI	CI	NI	MI	CI
Leningrad region, total	–10481	25807	15326	–9813	22602	12789	–8600	21659	13059
Suburban MD, total	–4205	17487	13282	–3882	19201	15319	–3024	22010	18986
Vsevolozhsk	–981	6389	5408	–853	12008	11155	–355	19329	18974
Gatchina	–1293	5309	4016	–1352	4144	2792	–1124	767	–357
Kirovsky	–682	1905	1223	–572	194	–378	–472	961	489
Lomonosov-sky	–421	168	–253	–412	462	50	–374	595	221
Tosnensky	–828	3716	2888	–693	2393	1700	–699	358	–341
Peripheral MD, total	–3929	5600	1671	–3620	1460	–2160	–3478	51	–3427

NI — natural increase, MI — migration increase, — combined increase, MD — municipal districts.

Compiled by the authors based on: [³⁰].

According to A. Makhrova and P. Kirillov, post-Soviet Russia developed its own urbanization model, for which the housing sphere became both an important indicator and a development factor [20]. One must keep in mind, however, that it often happens that housing projects follow people, not the other way round. Indeed, as V. Grishanov et al. put it, “It is a paradox, but there you are: migrants are attracted by life in large cities and agglomerations, where accommodation is the most expensive. Yet there are more jobs, and thus more opportunities for people with various qualifications to thrive”. They continue, “it once again confirms that the

³⁰ Database of indexes of municipal units of the Leningrad Region. Source: <http://www.gks.ru/dbscripts/munst/munst41/DBInet.cgi> (accessed 21.04.2018).

leading attraction for migrants is not the availability of housing *per se*, but it is still an important factor in restricting successful migrations" [21, pages 92 and 95].

Growing residential capacity of the suburban area became the reason the differences in migration trends between the suburban territory of the Leningrad region and its periphery, diversified migration flows and changed its balances (see Table 5).

Table 5

**Migration increase in the suburban municipal districts
of the Leningrad region in 2011—2016, people**

Municipal district	Migration increase	2011	2013	2016
Vsevolozhsky	Total, including:	6389	12008	19329
	within Russia, including	5286	9210	17729
	intraregional	– 151	526	1245
	interregional	5437	8684	16484
	international	1103	2798	1600
	External (for the region) migration	6540	11482	18084
Gatchinsky	Total, including:	5309	4144	767
	within Russia, including	4328	2915	530
	intraregional	150	204	– 98
	interregional	4178	2711	628
	international	981	1229	237
	External (for the region) migration	5159	3940	865
Kirovsky	Total, including:	1905	194	961
	within Russia, including	1354	716	614
	intraregional	– 16	– 91	39
	interregional	1370	807	575
	international	551	– 522	347
	External (for the region) migration	1921	285	922
Lomonosovsky	Total, including:	168	462	595
	within Russia, including	6	56	483
	intraregional	– 58	– 108	– 34
	interregional	64	164	517
	international	162	406	112
	External (for the region) migration	226	570	629
Tosnensky	Total, including:	3716	2393	358
	within Russia, including	3308	1321	163
	intraregional	349	114	– 59
	interregional	2959	1207	222
	international	408	1072	195
	External (for the region) migration	3367	2279	417

Compiled by the authors based on: [³¹].

³¹ Database of indexes of municipal units of the Leningrad Region.

Municipal districts of Vsevolozhsk and Lomonosov, leaders in housing construction, find themselves under increasing pressure, since the incoming migration had more than tripled from 2011 to 2016. Some settlements broke all records of an increase in migration balance: Anninskoye had a 69-fold increase in migration, and Murinskoye a 13-fold increase.

Increasing the flows of migrants into residential suburbs would rejuvenate the population and become an important regional factor for the improvement of natural reproduction indices. However, this result is still to be achieved at the municipal level — as can be seen from the dynamics of both mortality and birth rates. By 2016 only the areas close to the Saint Petersburg city limits showed natural increase of the population, which was achieved by the low mortality rate. Apart from the Vsevolozhsk settlement, the level of birth-rate in the same area is still below the regional average (see Table 6).

Table 6

**Birth-rate, mortality, and natural increase coefficients
of the suburban municipal districts of the Leningrad region in 2011—2016,
for 1000 people**

Municipal district	Coefficient	2011	2013	2016
Leningrad Region	CBC	8.6	8.8	9.2
	CCM	14.7	14.4	14.0
	CCNI	−6.1	−5.6	−4.8
Vsevolozhsk	CBC	7.7	8.5	9.6
	CCM	11.4	11.6	10.7
	CCNI	−3.7	−3.1	−1.1
Gatchinsky	CBC	8.5	8.4	8.9
	CCM	14.0	13.9	13.5
	CCNI	−5.5	−5.5	−4.6
Kirovsky	CBC	8.0	8.4	9.1
	CCM	14.7	13.8	13.6
	CCNI	−6.7	−5.4	−4.5
Lomonosovsky	CBC	7.0	7.6	7.7
	CCM	13.0	13.5	13.0
	CCNI	−6.0	−5.9	−5.3
Tosnensky	CBC	8.2	8.4	8.0
	CCM	14.9	13.7	13.4
	CCNI	−6.7	−5.3	−5.4

CBC — common birth-rate coefficient, CCM — common coefficient of mortality, CCNI — common coefficient of natural increase.

Compiled by the authors on the basis of: [³², ³³].

³² Database of indexes of municipal units of the Leningrad region.

³³ Regions of Russia. Socio-economic indicators — 2014. The total fertility, mortality, infant mortality and natural population growth rates Source: http://www.gks.ru/bgd/regl/B14_14p/IssWWW.exe/Stg/d01/02-08-1.htm (accessed 11.04.2018).

Unfortunately, it would make no sense to try and compile similar data for the city of Saint Petersburg and its subordinate suburban settlements due to the peculiarities of birth registration system. The federal law of 15.11.1997 No. 143-FZ "On the civil status acts" dictates that "the state filing of birth is made by a body of civil registration in the birthplace of a child or in the place of residence of her parents" (par. 1)³⁴. So, for every child born in Saint Petersburg, the city will be listed as their birthplace without any indication as to the specific municipality or settlement within the city limits. Furthermore, while accounts of births are made at local registry offices, birth certificates are issued either by either the local authority at the parents' official area of residence or the local authority closest to the actual place of birth (most often — a maternity home). The choice is entirely up to the parents, whose actual residential address, one should note, will often differ from their official address. To top all that, children of visitors from other regions or even countries who happened to be born in Saint Petersburg are often registered there — for the "Northern Capital" appeal. Thus, any data on the natural movement of the population through the municipalities and settlements constituting the city of Saint Petersburg has to be treated with a healthy dose of skepticism.

Difficulties also arise when one tries to trace natural population movement in the towns and rural settlements of the Leningrad region that belong to the residential suburbs. For example, the common birth-rate coefficient of the Sertolovo and Vsevolozhsk settlements (both in the Vsevolozhsk district), while very similar in rates and type of population change in the post-Soviet time, but of change of population in Post-Soviet time, suddenly shows a 2.7 difference for 2016 (Sertolovo — 6,5‰, Vsevolozhsk — 17,7‰). The explanation is simple: the only maternity home for the Vsevolozhsk district is located in the town of Vsevolozhsk, so the babies born there are listed Vsevolozhsk residents. From Sertolovo, on the other hand, it is easier to reach the maternity homes of Saint Petersburg than go to Vsevolozhsk, so many parents homes register their newborns at their actual birthplace — the city of Saint Petersburg.

Residential suburbs as symbiosis of Saint Petersburg and the Leningrad region

At the same time, both sides of the Leningrad region — Saint Petersburg border experience the development of similar territorial communities (in A. Tkachenko's terms [22]), or territorial social systems, as understood by A. Druzhining. His definition of the territorial social systems reads that those are "a combination of territorial and social (economic, cultural, political) programs, relations, institutes, symbols "working" (and showing itself) in a variety of spheres — economy, demography, social environment and others" [23, p. 43].

³⁴ The Federal Law "On the Civil Status Acts" of 15.11.1997 N 143-FZ (latest version). Source: http://www.consultant.ru/document/cons_doc_LAW_16758 (accessed 21.04.2018).

To support this claim, in Table 7 we have gathered data on the population growth for the municipalities within the Saint Petersburg city and the rural/urban settlements of the Leningrad region located within the suburban area. Municipalities, or municipal units, are the building blocks of Saint Petersburg administrative-territorial division, while rural/urban settlements serve the same function for the Leningrad region administrative-territorial division. Data on the population of municipal units within the "suburban" parts of Saint Petersburg includes the southern part of Krasnoselsky district, and all data on the rural/urban settlements of the Leningrad region adjoining city borders includes the Vyborgsky district of the Leningrad region. Additionally, data on the distance from a municipal unit or a rural/urban settlement. Municipal units of Saint Petersburg and settlements of the Leningrad region are listed clockwise. As there are fewer settlements in the Leningrad region adjoining the Saint Petersburg city borders than there are municipal units within the city, table columns will not always match.

Table 7

**Population of the suburban municipal units of Saint Petersburg
and rural/urban settlements of the Leningrad region**

Districts and municipal units of St. Petersburg				Districts and rural/urban settlements of the Leningrad region			
Name	Population, thousand people		D ³⁵	Name	Population, thousand people		D
	2012	2018			2012	2018	
<i>Kurortny district</i>				<i>Vyborgsky district</i>			
Village Smolyachkovo	0,5	0,8	70	Polyanskoye	15,7	15,4	87
Settlement Molodezhnoye	1,6	1,7	66	Pervomaiskoye	8,7	9,5	67
Settlement of Serovo	0,3	0,3	65	Roshchinskoye	20,4	20,8	66
Settlement of Ushkovo	0,6	0,7	60	<i>Vsevolozhsk district</i>			
Town of Zelenogorsk	15,1	15,3	50	Sertolovo	48,9	53,0	27
Settlement of Komarovo	1,2	1,3	48	Yukkovskoye	3,4	4,2	20
Settlement of Repino	2,5	2,8	45	Bugrovskoye	9,1	13,4	17
Settlement Solnechnoye	1,4	1,6	41	Murinskoye	8,3	30,8	18
City of Sestroretsk	37,8	41,1	36	Novodevyatkinskoye*	11,4	18,4	20
Settlement of Beloostrov	2,1	2,2	34	Vsevolozhsk	60,6	73,1	30
Pesochnoye settlement	8,3	9,0	27	Zanevskoye	7,5	29,6	15
<i>Primorsky district</i>				Sverdlovskoye	10,6	12,1	29
Settlement Lisiy Nos	4,8	4,9	25	<i>Kirovsky district</i>			
Lahta-Olgino	4,0	4,4	21	Otradnoye	24,5	25,4	36
<i>Vyborgsky district</i>				<i>Tosnensky district</i>			
Settlement of Levashovo	3,7	4,9	24	Nikolskoye*	20,4	23,1	45
Settlement of Pargolovo	15,9	59,2	20	Krasnoborskoye	5,2	5,2	39
<i>Kolpino district</i>				Telmanovskoye	12,5	14,5	37
Metallostroy	26,6	29,2	22	Fyodorovskoye	3,7	4,2	37
Ust-Izhora	1,5	1,8	22	<i>Gatchina district</i>			
Petro-Slavyanka	1,1	1,3	23	Susaninskoye	7,8	8,4	66
Pontonny	8,3	9,0	26	Kommunarskoye	20,7	22,1	38
Sapyorny	1,4	1,6	29	Pudomyagskoye	6,0	6,4	47
Town of Kolpino	140,4	145,7	31	Verevskoye	6,6	7,2	41

³⁵ Distance to the centre of Saint Petersburg, km.

End of Table 7

Districts and municipal units of St. Petersburg				Districts and rural/urban settlements of the Leningrad region			
Name	Population, thousand people		D ³⁶	Name	Population, thousand people		D
	2012	2018			2012	2018	
<i>Pushkin district</i>				<i>Lomonosovsky district</i>			
Settlement of Shushary	23,3	77,1	16	Villozskoye	6,6	7,8	43
Settlement of Aleksandrovskaya	2,7	2,7	25	Lagolovskoye	3,8	3,6	36
Town of Pushkin	95,2	109,9	26	Anninskoye	7,7	9,4	27
Settlement of Tyarlevo	2,0	1,4	28	Gorbunkovskoye	9,9	9,0	30
Town of Pavlovsk	16,4	17,7	33	Nizinskoye	4,0	4,3	35
<i>Krasnoselsky district</i>				Penikovskoye	2,5	2,9	60
Gorelovo	23,3	29,7	26				
Town of Krasnoye Selo	45,0	56,8	28				
<i>Petrodvorets district</i>							
Settlement of Strelna	12,6	14,8	25				
Peterhof	74,1	82,9	30				
Town of Lomonosov	43,1	43,2	40				
<i>Kronstadt district</i>							
Town of Kronstadt	43,7	44,4	51				

Note: * — short distance from the Saint Petersburg border, but does not border Saint Petersburg immediately

Compiled by the authors based on: [³⁷, ³⁸, ³⁹, ⁴⁰].

One should keep in mind that the data given above reflect the number of the population registered in the municipal units of Saint Petersburg and urban/rural settlements of the Leningrad region for those people whose residential address matches their actual address. In reality, the numbers can be similar to those provided in the Table, or could swing either up or down. Given the current system of statistical indicators, it is impossible to collect actual data on the movement of people across municipal units.

From what we can see, the population in the suburban area of Saint Petersburg mainly increases in the settlements located at a distance of 14—16 to 30—32 km from the centre of the city, irrespective of whether they are listed as municipalities within the city proper or within the Leningrad region. In some settlements lying within this interval, one can see quite a few jumps in the number of people. For instance, to the north from the city in the town of Pargolovo (Vyborgsky district of Saint Petersburg), located at approximately 20 km from the centre of Saint Petersburg, the population almost quadrupled, having grown from 16 to 60 thousand peo-

³⁶ Distance to the centre of Saint Petersburg, km.

³⁷ Population of municipal units and the Sosnovoborsk city district of the Leningrad Region for January 1st, 2012.

³⁸ Population of St. Petersburg as of January 1st, 2018.

³⁹ Population of municipal units of St. Petersburg as of January 1st, 2018.

⁴⁰ Assessment of population of the Leningrad region for January 1st, 2018.

ple within six years (2012—2018). In the settlement Shushary, 16 km to the south from Saint Petersburg around the town of Pushkin, the population also grew by almost four times, from 23 up to 77 thousand people. In the Murinsky urban settlement (Vsevolozhsk district of the Leningrad region) located 18 km from the centre of St. Petersburg, the population also jumped from 8.3 thousand people to 30.8 thousand people. A similar increase happened in the urban settlement of Zanevsky (15 km from the centre of Saint Petersburg), where the number went from 7.5 thousand to 29.6 thousand people.

This belt (14—15 km to 30—32 km) is shared by the larger urban settlements (Sertolovo, Vsevolozhsk, Pushkin, Peterhof, etc.) that also experience rapid population growth. Note that the distances of up to 32 km, while large for the suburban area, are calculated by approximating the distance from the centre of Saint Petersburg to the centre of a respective administrative-territorial unit, and the sizes of the administrative-territorial units in question are not accounted for. The settlement of Pargolovo, for example, with its 60 thousand population in 2018, stretches 7 km along the Vyborg highway.

Beyond 30—32 km from the centre, Saint Petersburg's influence on the population size of the area starts to weaken, disappearing completely at the 50 km mark. One may conclude that the suburban area where demographic processes are defined by its proximity to Saint Petersburg does not stretch beyond the 32 km range from the centre of the city. Settlements located further than that form their local systems of settlements that are influenced by the proximity to Saint Petersburg but not shaped by it, which is reflected, for example, in a somewhat sluggish population growth rates.

In Zelenogorsk (50 km from Saint Petersburg), Kronstadt (51 km), Lomonosov (40 km) the population practically did not change from 2012 to 2018. At distances over 60 km from the Saint Petersburg city centre, its influence on demographic processes is not visible at all. Sixty kilometers from the centre of Saint Petersburg correspond to an isochrone of two-hour commute to the centre, which usually defines an agglomeration border. Typically, this isochrone lies approximately 120 to 130 km from the respective centre, calculated from the average traveling speed of a vehicle on a highway. But this calculation does not account for traffic jams and stopovers for those who commute by car, or waiting periods or transition times for those who travel by public transport.

That a 60-km-drive from the Saint Petersburg suburbs to the city centre takes approximately two hours is an empirical observation. Moreover, when approaching the centre time is reduced at a slower rate than distance does: it takes about 1.5 hours to drive the first 30 km, and about an hour to cover the consecutive 20 km, irrespective of direction. At distances shorter than 20 km dependence on the direction is can be observed, with minimum commute time of about 40 minutes for settlements

of a residential suburb in the vicinity of the Devyatkinno metro station mentioned above. Borrowing the term from the Polish geographer, P. Shleshinsky [24], we are talking about “ideal isochrones”, but the real ones are not too far behind. Thus, from the “temporal” viewpoint, the most geodemographically active part of the suburban area lies between an isochrone of forty-minute and one-and-a-half-hour commute from the centre of Saint Petersburg.

Deconcentration of the settlement pattern in Leningrad (Saint Petersburg) really began in the 1960s, when the metro took over as the main public transport.

In the 1970s, with the construction of new residential areas, deconcentration trends began to be visible, with each new area eventually blooming into a semiautonomous city. During the “industrial” period of Leningrad history, the internal unity of the city was supported by the continuous commute of people from their bedroom communities to their workplaces. In the 1990s, with the crash of most industrial enterprises, the majority of new jobs were created in the historical centre of the city, and the commuter traffic between the suburbs and the city centre only amplified.

The first years of the 21st century suburban areas have become the most economically dynamic part of Saint Petersburg, and experienced their own “post-industrialization”. The majority of new jobs are now created here, a considerable proportion the population of suburban areas no longer needs the long commute. At the same time, external borders of the suburban zone move further out swallowing more territories as they shift.

Now the unity of the city rests on the pillars of higher education (the majority of higher education institutions are located in the central districts) and culture (museums, theaters, etc.), yet for the majority of the suburban population, their local social infrastructure suffices. Furthermore, abundance of the undeveloped areas in the residential suburbs allows to look into building their own academic community. In fact, both Saint Petersburg State University and the ITMO University have recently announced their plans to build campuses in the new satellite town with the working name Yuzhny whose construction is to take place between Pushkin and Gatchina [25; 26].

Conclusions

The recent decades are seeing active transformation of the spatial structure of society along the borders between of Saint Petersburg and the Leningrad region. Geodemographic processes are especially interesting here, as there, for the first time in contemporary Russia, we observe the processes of decentralization of system of resettlement, whereby the previously developed territories belonging to two different federal subjects constitute a new, shared, spatial network. The territorial system of resettlement, in which the residential suburb is its most dynamic part, is formed — perhaps, a first in Russia.

These processes can be framed within the concept of "communication environment" [27] developed by one of the authors, that allows not only to describe the formation and the current spatial structure of a society, but to predict its future developments.

As far as practical solutions connected with the development of this suburban area are concerned, they could involve a change in the administrative status of suburban territories with the need to amend the current legislation of the Russian Federation. It is obvious that such changes are required to organize a comprehensive system of interaction between the suburban territories which fall into different jurisdictions of the territorial subjects of the federation. Here it is possible to use the approaches to the formation of "metropolitan municipal areas" as offered by A. Tkachenko and A. Fomkina based on the reference metropolitan statistical areas of the USA [28] and on the international experience of management of city agglomerations development, the detailed analysis of which from geographical positions is given in an article by A. Batchayev, B. Zhikharevich and N. Lebedeva published in 2012 [29].

A. Makhrova writes about the current state of the Moscow agglomeration, "its combination of features characteristic of different stages of development leaves open a question of its current stage. It is not clear whether Moscow undergoes a re-urbanization stage, having endured a stage of suburbanization and counterurbanization in the form of seasonal country migration, or experiences its unique model of development caused by historical heritage and modern specifics" [30, p. 16]. In other words, transformation of the system of resettlement in the Moscow area is so chaotic that it is difficult to either describe or explain it in unambiguous terms.

Saint Petersburg falls behind the capital in its urbanization processes but this lag can be used to orchestrate a systemic spatial development of its suburban area considering that this zone will be one of the most active ones in the Russian Northwest from the point of view of demographic, social, and economic growth for years to come.

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